EFFICIENCY OF FIRE INSPECTIONS CONDUCTED BY FIRE COMPANIES

EXECUTIVE LEADERSHIP

BY: Stephen F. Bradley
Washington Township Fire Department
Indianapolis, Indiana

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Appendices Not Included. Please visit the Learning Resource Center on the Web at http://www.lrc.dhs.gov/ to learn how to obtain this report in its entirety through Interlibrary Loan.

ABSTRACT

The Washington Township Fire Department located on the Northside of Indianapolis conducts fire inspections, utilizing fire companies for the majority of the work. Since the inspection program's inception, several formats have been used to complete the annual task. In two-thousand and three, the Fire Marshal changed the format again raising questions among company personnel as to the reasons for the program and its effectiveness.

This project utilized action research methodology to look at the program and determine if, (1) is there a need for fire company inspections by the Washington Township Fire Department, (2) are firefighters from company inspection teams adequately trained to conduct those investigations, and (3) is the fire inspection program properly set up to efficiently meet the needs of the community?

The procedures used in the project included a review of the current inspection statistics for the years nineteen ninety-nine through two-thousand and two. Additionally, a review of the current national and state standards for fire inspector was compared with the training company firefighters had received to complete their work, and an evaluation was made of the work performed by firefighters by revisiting businesses inspected by firefighters to determine if all defects were found and properly documented by the inspecting personnel.

The findings indicated that firefighters identified forty-two separate types of violations over the study period, but that ten violation categories were cited ten to twenty times more than the other thirty-two. There was a downward trend in violations cited over the four year period, indicating that businesses were slowly complying with regulations regarding fire safety. In regards to training, the findings indicated that only a handful of firefighters are certified as fire inspectors and that additional training is needed for company firefighters. In reviewing the work performed by firefighters, company inspectors missed just over ten percent of violations for businesses they visited when those businesses were revisited by the investigator.

The recommendations made from this research include, (1) fire companies should continue to perform fire inspections, (2) training in how to conduct fire inspections must be improved for firefighters in the companies, (3) the top ten violations must be addressed to reduce the high numbers of violations, and (4) a better management system should be instituted to oversee the program and assist in correcting deficiencies.

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INTRODUCTION

The Washington Township Fire Department located on the Northside of Indianapolis has experienced budget and personnel assignment changes recently that have affected the fire inspection program for businesses operating within the Township. The Fire Marshal for the Fire Department has attempted to alter the program to meet the demand for inspections within the confines of the changes. The previous inspection program and the current program have not been studied to determine their effectiveness in providing fire inspections to the community.

The purpose of this applied research project is to determine if the current fire inspection program used by the Washington Township Fire Department is appropriate for the needs of the community and the Fire Department. Then if needed, recommend a course of action for the fire inspection program.

This project will utilize action research methodology to evaluate the inspection program and/or correct problems if encountered. Specifically, the research questions to be answered are:

1. Is there a need for fire company inspections at the Washington Township Fire Department?

2. Are firefighters from company inspection teams adequately trained to conduct those inspections?

3. Is the fire inspection program properly set up to meet the needs of the community?

BACKGROUND AND SIGNIFICANCE

In the late 1970's, the Washington Township Fire Department began fire inspections of businesses in Washington Township by utilizing firefighter positions assigned to the Administrative Office, (Batza, 2003). While the working hours and personnel changed over the next two decades, the responsibility for fire inspections were an administrative function until 1990. At that time, personnel assigned to fire apparatus and ambulances were trained to complete fire inspections in order to expand the number of buildings inspected each year and to improve firefighter knowledge of buildings in their district through personal visits. During the 1990's, there were several changes in the Fire Department's Fire Marshal's position resulting in a variety of programs designed to meet the inspection goals in the service district.

One of the biggest changes made in 1993 was to eliminate the administrative positions established in the 1970's. That change was based on the Fire Chief's evaluation that those administrative inspectors had too much down time and were not productive. Those three positions were reassigned to the fire stations to improve staffing levels. With the retention of the Fire Marshal and the Assistant Fire Marshal, buildings with high-life

hazards were inspected and administrative functions were now completed by those two officers. With the exception of those high life hazard facilities, most inspections were completed by company personnel when not responding to emergency runs or on training details.

The program was changed again in 1995 when the Fire Chief directed the Fire Marshal to ensure that one-hundred percent of the buildings in the Township were inspected each year. Prior to that time, while the inspection totals were very high, less than one hundred percent of the buildings were inspected each year utilizing both administrative personnel and company personnel. At the time of the 1995 change, firefighters were given additional in-house training in fire inspections and company personnel began visiting more business and buildings. However, the additional training received by firefighters was not certification training as fire inspectors. Concerns were raised that the Department had traded quality for quantity and violations were being missed. There were concerns among firefighters and some administrators that the program was not effective and had confusing goals including questioning if the work actually saved lives and prevented fires. Additionally, questions were asked among the company inspectors if everyone understood the process and found violations. There was considerable pressure to meet the quantity of inspections required by the Chief.

At the beginning of the 2003 inspection season, the Fire Marshal announced that

the inspection program had undergone a revision and would have a new format. In the new inspection format, company personnel would be making fewer inspections, but would return to businesses they cited for re-inspection. The purpose of the reduction was to reduce the work-load fire companies had during the previous inspection season. The workload was reduced due to observations made by an Assistant Chief that fire companies were going from training classes to runs to inspections and returned to the fire station only in the evenings. As part of the new program, each building would be visited over a three year period on a rotating basis.

The new program was initiated in April of 2003. During the orientation program, several firefighters voiced their opposition to the program. It is unclear if their objections were to the change, to the work-load or because the program wasn't clearly explained.

A recent fire at a Rhode Island nightclub which killed 99 people, has resulted in a critical look at fire inspections at departments around the nation and at Washington Township. Survivors of some patrons killed in that fire have filed suit against several people and institutions, including the State of Rhode Island and the Rhode Island State Fire Marshal. One of the allegations made in the lawsuit states that fire inspectors were not properly trained by the Fire Marshal to conduct fire inspections (Firehouse, January 2003).

There have been no studies to indicate the current effectiveness of the inspection program. Past performance statistics are available and need to be reviewed to determine what level of work was performed. The current program needs to be reviewed to evaluate

the work done by company inspectors for quality assurance and a projection needs to be made for future work and see how goals can be met for the department while life safety and property protection can be delivered to the public.

The skills learned in the Executive Leadership course will be used to complete this project. In addition to evaluating the program and initiating changes if necessary, it will also be necessary for the firefighters, the public and the administration to agree to the program and its format, in whatever form it may take.

The projected value to the community and to the Department is the protection of both the public and firefighters from the hazards of fire. In addition to the loss of life or injury, the loss of business and productivity within the community from fire would hurt an already slow economy. In this way the program provides a service to the business community, but also contributes to the safety of high life hazard locations such as schools, hospitals, and nursing homes.

LITERATURE REVIEW

Code enforcement has been present for years, actually thousands of years. While

originally designed for the built environment, it has developed into both the built environment and fire protection. King Hammurabi, a Babylonian king who reigned from 1955 B.C. to 1913 B.C. instituted a building code that was enforced by retaliation. If a building collapsed the architect was put to death. If the owner was killed, the architect's son was also put to death, (Cote et al., 2003).

Romans took building collapse seriously but also introduced fire regulations and building construction rules which when created were enforced, (Cote et al., 2003). Under reigns of Julius and Augustus Caesar, Rome had many large apartment buildings constructed as the city grew. Because structural failure and collapse were so common, sizes of the buildings were restricted by Roman law, (Cote et al., 2003).

In the colonial days of Australia and the United States, building and fire laws reflected Greek and Roman laws which attempted to prevent loss of life and property from fire, (Lathrop, 1991). The rules were specific and included information regarding the roof and chimney detailing, how they could be constructed and what materials could be used in their construction, (Cote et al., 2003), (Lathrop, 1991).

The laws regarding community safety in buildings were important to many people including early government officials. President George Washington created a list of considerations for construction of private buildings that included regulations regarding

building heights and the wood used in the construction, (Lathrop, 1991). All of these trends have continued and were strengthened by small and large incidents which reinforced the need for the work (Lathrop, 1991). Examples of incidents which reinforced the need for codes include the Chicago fire of 1871 and the San Francisco fire of 1906, (Lathrop, 1991).

There are more than 93,000 codes in the United States today that affect buildings in regard to construction and fire safety, (Cote et al., 2003). Utilizing these codes to meet the need for fire safety, fire departments around the United States are heavily involved in fire prevention. One of the first steps in the fire protection process is the examination of construction plans commonly referred to as Plans Review. Eighty-nine percent of the fire departments in the United States have a form of Plans Reviews, (Lathrop, 1991).

The need for the review of construction plans and the continued fire inspection of buildings can be shown by the number of buildings involved in fire. There were sixty-five thousand office building fires from nineteen ninety-two to nineteen ninety-six, (Isner & DiVito, 2000). Despite the work in fire prevention over the years, loss of life from fire for firefighters has remained constant. In February 2003, *Fire Chief Magazine* reported in their "Washington Watch" column that one hundred and two firefighters lost their lives in line of duty deaths in calendar year 2002.

Fire prevention activities are well recognized by the communities served by fire departments. Measuring all parameters of fire department activities over a ten year period, the public values fire prevention over all others at a forty-one percent rating, (May, 2003).

Building codes are laws when adopted by local jurisdictions. There are several model codes that have been developed by organizations who have an interest in building codes. Those organizations include trade organizations, professional organizations, the Federal, state and local governments, insurance agencies, fire organizations, materials organizations and insurance agencies, (Cote et al., 2003). In the state of Indiana, the codes created by the International Conference of Building Officials, which is part of the International Code Council has been adopted by the State as code, (Cote et al., 2003).

In the majority of model codes written today, there is a duty to inspect clause directed at the local fire department. The specifics of these clauses direct the fire inspector to inspect all building within the jurisdiction and do not allow specific enforcement, (International Fire Service Training Association [IFSTA], (1998).

In order for fire inspectors to visit buildings, codes allow them the right of entry for inspection compliance, (IFSTA, 1998). While most inspectors do not have problems entering buildings for the inspection, the United States Supreme Court has ruled in See v.

City of Seattle that portions of commercial premises are not open to the public, (IFSTA, 1998). Other than private buildings, publicly owned businesses are not always open to the inspector. Some Federal buildings are not subject to inspection, (IFSTA, 1998). Postal buildings are one example that fall into that category.

Fire prevention inspections are the most important non-emergency function performed by the fire service, (IFSTA, 1998). Fire inspections or on-site reviews are needed by fire departments because it is important not to overload buildings with occupants and to ensure that all egress doors are available in case of emergencies, (Lathrop, 1991). There are cases where businesses view the fire inspection as an intrusion into their business and a nuisance problem. Most businesses view the inspection process as part of their loss control mission and a benefit to the bottom line, (IFSTA, 1998). Additionally, businesses could consider the fire inspection as a highly competent fire and safety consultant paid for with their taxes, (Scott, 1997).

While building codes and fire codes are good for the public safety during the construction phase, only fire codes provide for regular inspection after construction is done. In this way, fire inspections or code enforcement is connected to life safety because people will modify buildings after they are occupied and even the best fire codes are worthless without effective follow-up through inspections, (Donner, 1997).

Managers of mid-sized building realize that they need fire protection services but their business size places them in a position where they haven't developed a corporate policy to meet that need, (Isner & DiVito, 2000).

One of the greatest needs for fire inspections involves the area where there are assembly rooms inside structures. Those areas include churches, transportation buildings, entertainment buildings, discussion areas, schools or other facilities that have the highest concentration of people per square foot, (Corbett, 1992). All of these people are at risk because they are at risk for injury or death from a single fire incident, (Corbett, 1992). Two recent events dramatically emphasize this point. In February, twenty-one people were killed and more than forty were injured in a Chicago nightclub door rush incident after security guards sprayed pepper spray to break up a fight, (McGill, 2003). In Rhode Island, ninety-nine people were killed and one hundred and ninety injured in a nightclub fire after pyrotechnics caused a rapid moving fire during a concert, (McGill, 2003). In contrast to these incidents where so many people were killed and injured, a fire in Minneapolis at a music cafe during a concert resulted in no deaths when the staff at the event had discussed the Chicago affair prior to the event. Additionally, the Minneapolis venue was a sprinkled building, (McGill, 2003). Venue events are also dangerous because many times alcohol is involved in the event and occupants are impaired when the emergency occurs, (McGill, 2003).

In addition to having safety features present for all occupants, fire inspections are also critical for firefighter safety. In nineteen eighty-eight, three Hackensack, New Jersey firefighters were killed when wooden trusses failed and collapsed, (Smith, 2003). While the disaster pointed out the danger of trusses, it also pointed out that fire inspections at buildings would alert firefighters to dangers prior to their arrival.

Anyone performing fire inspections for the fire department must have a clear understanding of the responsibilities of the position and the statutes they are responsible for enforcing, (IFSTA, 1998). In the April, 2003 issue of *Fire Chief Magazine,* in their "News & Trends" column, the magazine reviewed the challenges to national code organizations. The column reviewed code requirements for the fire service in wake of the deaths in Chicago and Rhode Island. The column called for the fire service to ensure that every fire inspector was trained and certified to perform fire inspections in an attempt to prevent tragedies like the ones in the Chicago and Rhode Island nightclubs.

In many jurisdictions, the basic fire inspection for the departments are performed by fire companies. In these areas, the personnel on the inspecting apparatus are trained and certified to the National Fire Protection Association (NFPA) 1031, "Standard for Professional Qualifications for Fire Inspector," (IFSTA, 1998). Fire companies have begun to provide the majority of fire inspections for their fire departments in addition to their duties regarding emergency responses and training, (Donner, 1997). Because the

extra work has to be added to an already busy schedule for fire companies, the need to develop an effective program to manage the inspection process is critical to the success of the program, (Donner, 1997).

Fire companies are being utilized to fill a void created in the budgets of most fire departments inspection programs. As budgets shrink, inspection programs are being stretched to their limits, (Jenaway, 1988). The fire service isn't the only group who are susceptible to funding concerns. Local building officials ability to work with the fire code process is tied to their funding, (Hart, 2001).

Depending on what position the fire inspector holds, there may be a variety of liability for the inspector, (IFSTA, 1998). While liability varies from jurisdiction to jurisdiction, the inspector needs to be aware that some liability is established by state or local laws, (IFSTA, 1998). Fire inspectors are not usually held liable for discretionary acts which involves the actions fire inspectors considered necessary to fulfill their responsibility. Rather, fire inspectors are held for ministerial actions that involve the manner in which the fire inspectors carries out an act or policy, (IFSTA, 1998). The biggest liability danger for the fire inspector is when a fire occurs in a business and it is determined that the fire was a result of a violation found but not corrected, or a violation not found during an inspection, (IFSTA, 1998). It is often recommended to perform fewer more effective inspections with follow-up than to have more haphazard inspections

with areas that have been missed, (IFSTA, 1998). Less than quality inspections causes public and firefighter safety to suffer, (Donner, 1997).

Inspections are an attempt to reduce risk by increasing safety, (Cote et al., 2003). Because financial investment is necessary to increase safety and reduce risk, many refer to fire safety as a "willingness to pay," (Cote et al., 2003). Yet codes are the first line of defense in fire protection, (Donner, 1997).

In order to create the biggest impact with fire inspections, the fire inspector should concentrate in tackling the worst problems first, (Barr, 1982). By maximizing efforts, you can invest time in work that pays the biggest dividends, (McLees, 1997). Having knowledge of buildings prior to arriving during emergencies, is priceless in providing safety for firefighters and citizens leaving the building, (McLees, 1997). The codes help prevent fires from starting and minimizes the size of fires that do start, protecting the lives of the public and firefighters alike, (Donner, 1997).

Looking at inspections, the first question to ask is, do you manage the inspection program or does it manage you, (Donner, 1997)? If the inspection load is too large, it may detour the selection of buildings to inspect, (Donner, 1997). Company officers with too many inspections may 1) run out of time to complete the inspections, 2) intentionally

not complete inspections, or 3) do quick and sloppy inspections to meet quota, (Donner, 1997). Even when company inspections are used as an inspection resource, the number of inspections out-number the capability of the inspection division and fire companies combined, (Jenaway, 1988). At a time when inspectors are drastically needed, budget cuts in government are forcing fire marshals to cut back or reduce inspection programs, (Scott, 1997). It is important to know who your business customer is when conducting inspections. Business owners who use English as a second language may be hard to communicate with effectively during the building inspection program, (Scott, 1997).

There are several examples of fire department that utilize company personnel to conduct building inspections. The City of Boulder, Colorado utilizes company inspectors to conduct building inspections utilizing a priority system to inspect businesses on a rotating three year period, (Donner, 1997). The Phoenix Fire Department utilizes company inspections and adds voluntary citizen inspections who inspect their own businesses and return forms to the fire department, (Scott, 1997). A recent movement on building code enforcement and inspections was initiated after the nightclub fires. The movement asks for an increased amount of training and enforcement with building inspections, (McGill, 2003).

The literature review suggests that there is a long history of building and code

enforcement in the United States that is a result of codes and regulations that started as far back as the Roman Empire, changed in Europe and the colonies in the United States and has developed over the years.

Statistics show that there is a value in saving lives and properties through the work in codes and their enforcement. The codes are laws that have been adopted locally from models developed through a consensus of organizations that have an interest in buildings and their usage.

There is a need for inspections because there is a direct relationship between fire inspections and the number of lives saved and property protected because of the work. In order for the inspection program to be successful, the inspectors need to be educated and trained in the codes, the laws that affect them and how to conduct the inspection.

Fire companies can be effectively utilized to assist with inspections as long as the program that uses those resources is properly constructed, managed, reviewed and adjusted to maximize its performance. When properly used, the fire company inspection program can be functional without increasing liability to the individual inspector, the fire marshal or the department as a whole. There is a direct correlation between inspections and saving lives and property.

While there will be roadblocks in creating, managing and adapting the program, the trends in the fire service show that company inspections are worthwhile and effective.

PROCEDURES

The procedures of the project will be divided into three areas of action that correlate to the three research questions asked regarding the subject matter.

The first question asks whether there is a need for inspection services from the Township, specifically the need for fire company inspections within the Township. In investigating the need for fire inspections, areas of the inspection program need to be reviewed. The first area reviewed will be the laws governing fire inspections for the State of Indiana to see if there is a requirement or mandate for fire inspections. Secondly, the inspection history for the Township over the last four years will be reviewed to determine what violations were found and how many violations per category.

The second question relates to firefighter training with regards to inspections. A review of the standards for inspectors will be compared between the National Fire Protection Association (NFPA), the State of Indiana Emergency Management Agency (SEMA) and professional organizations. After the standards are compared, the training given to firefighters at the Township will be compared with national standards to determine if company firefighters are trained to the levels recommended by the standards.

While reviewing the training records are important, it is equally important to conduct a review of the firefighter's work to see if their training is being put into practice. Thirdly, a random review of the current inspection program will be made to see if the inspections currently underway locate and document correctly the status of the buildings as required by the standards and the training used by the Department. Each of the stations on each shift will submit building inspections this year as part of their inspection work. When those reviews are submitted, a follow-up visit by the investigator will be made to determine if the inspection was accurate for the current condition of the building. Since work to correct deficiencies may be initiated by the building owner or tenet, the follow up should be conducted as soon as possible and the owner or tenet should be questioned to see if they have performed any work to meet compliance for code since the original inspection. The owners or tenets will be informed that this visit is for training and quality assurance only and does not affect their inspection and compliance requirements. While the data obtained by the investigator will be shared with the Fire Marshal, the specific business name or address will not be shared with his office or personnel. These statistics will be compared with the total number of building fire in the Township during the same four year period. An attempt will made to connect the amount of fires with the inspection program to see if the are related.

The work may be limited by the accuracy of the data obtained over the last four

years. With inspections being conducted by many firefighters, including firefighters from all companies, there is no way to ensure that each inspection was done in a similar fashion. It is more likely that each company conducted their inspections a little differently than all the other companies which will created differences in data for each shift and or company that conducted the inspection. Additionally, businesses may have left or entered the Township during this period and a total of four years for each business may not be available. Training reviews may be limited if a syllabus or outline is not available for past inspection training programs, even though attendance at training may be documented.

RESULTS

To determine if there is a mandate to conduct fire inspections, a review of the Indiana Code was made to answer the question. Indiana Code 36-8-17-8, states that a fire department serving a city shall inspect every place and public way within the department's jurisdiction except the interiors of private dwellings. The code goes further to give the fire chief some latitude on how fire inspections can be handled for the public good. The code states that the fire chief may schedule the inspections as necessary to serve the public interest. If the public interest is served by not conducting an inspection either individually or by class, the fire department is not required to inspect all buildings within the jurisdiction.

The department is however, required to submit monthly reports to the Indiana State Fire Marshal's Office that include four pieces of information. First, the total number of inspections for the month shall be submitted. Secondly, the total number of defects by classification shall be submitted. The State Fire Marshal's Office will establish the classifications that need to be reported. Thirdly, the total number of correction orders issued shall be reported. Finally, the total number of orders complied with need to be reported to the State Fire Marshal's Office. As the Washington Township Fire Department serves a portion of the City of Indianapolis, this Indiana Code appears to apply to the Department.

The inspection history of the Department was reviewed starting January 1, 1999 through December 31, 2002. During this time, 15,359 defects were identified by both fire inspectors from Headquarters and company personnel. The number of businesses operating each year varied, but the mean average of businesses open and requiring inspection was 4,404 separate businesses. Year 2000 had the most defects listed at 4,729 and the year 2002 had the fewest defects recorded at 3,034 defects. A listing of the defects by category and by year are shown in appendix A.

An interesting trend noted by the investigator was that in twenty-six of the forty-two categories, there was a continual decline in defects from years 1999 through 2002.

The other sixteen categories showed a variety of movement in the violation numbers. These categories are shown in the chart in Appendix B.

Ten of the forty-two categories showed consistently high defect totals each year. Eight of the categories showed a decreasing trend in defects as the years progress. One remained the same and one fluctuated in defect totals. The top ten categories in defects were ten to twenty times higher in totals that the other thirty-two categories. A listing of the top ten categories and a trend chart is shown in Appendix C.

A search for the total number of fires in commercial businesses found that statistics for that category were not kept for the first three years of the study. The Township Fire Marshal indicated that his office only began tracking fires in commercial businesses in two-thousand and two. The previous Fire Marshal did not record data for that category prior to last year.

The National Fire Protection Association (NFPA) created a standard for Fire Inspector, NFPA 1031, last published in 1998 listing the training and responsibilities for certification. Without listing specifics protected under copyright laws, the Standard provides for administration, definitions, requirements for Fire Inspector I, II and III, appendices, references and additional information for inspection work and certification.

The basics of NFPA 1031 include authority, responsibility, procedures, fire safety, building construction, occupancy, means of egress, fire protection and water supply systems, plans review, hazardous materials, hazmat storage, hazmat handling and use. The certification requires classroom instruction, written and practical testing and re-certification every five years.

The State of Indiana Emergency Management Agency (SEMA) has adopted the NFPA Standard for Fire Inspector as the requirement for Indiana. Pre-requisites, training, certification and recertification follow the requirements of NFPA for 1031.

The training records of Fire Department personnel were then reviewed to determine how firefighters are trained to conduct fire inspections within the Township. Of the one-hundred and thirty-nine firefighters currently employed by the Township, four firefighters have completed the training as required by NFPA 1031. The balance of the firefighters employed at the Township are trained to inspect buildings through a Department created class utilizing NFPA 1031 as a guideline, and the classifications utilized by the Indiana State Fire Marshal for fire inspections. Each new recruit receives training at the Fire Academy in the Department class as part of the recruit class. All firefighters receive annual update training in fire inspections at the beginning of the inspection season. New information, changes in the program or paperwork are introduced during this class. The inspection season lasts from April 1st each year until

the end of October the same year. A follow up of four hundred inspections was done to determine if inspections were properly performed by company personnel. No follow up was done for personnel assigned to the Administrative offices.

Of the four-hundred inspections reviewed, there were one-hundred and seventy violations found and documented by firefighters. Three-hundred and twenty inspections found no violations in the business or the address was vacant and no entry could be made to the premises. Eighty inspections found violations in businesses, most of which had multiple defects noted. The mean average for the inspections that had multiple violations was 1.88 per business.

Of the three-hundred and twenty businesses that were documented to have no violations found, twenty violations were missed by firefighters. The total violations found should have been one-hundred ninety violations. The two categories that were missed the most by firefighters were emergency lights must be in working condition and directed to exit corridors and fire extinguisher annual inspection/properly displayed. In the sample inspection group, firefighters missed 10.52% of the violations.

The inspection program's structure was reviewed to evaluate how the work and review process contributes to the success of the program. One of the area's reviewed was the high life-hazard buildings within the Township. In the four years studied, most of the

high life-hazard buildings were inspected by the Fire Marshal and Administrative Personnel. The high life-hazard buildings included all high-rise office buildings, hospitals, all new construction, a large public high school located within the Township and all businesses with a history of high violation citations. Smaller elementary schools, middle schools, nursing facilities and strip malls were inspected by company personnel. Beginning in two-thousand and three, the Fire Marshal and Administrative Staff will inspect hospitals, the large Township high school, the two largest high-rises and new construction. The other high life- hazards will be added to the company list of inspections to be done. As with previous years, all high-life hazards will be inspected annually. Businesses with a history of no violations and lower life hazards were removed from annual visits and will be visited on a three year rotation basis. The selection process for dividing up these remaining businesses was done at random. The reduction in visits by company personnel for two-thousand and three was a one-third reduction.

The follow-up work by re-visiting cited businesses in the study years was always done by the Fire Marshal and Administrative Personnel. Beginning in two-thousand and three, follow-up on violations will be conducted by the company that made the original inspection. The company personnel will be responsible to return for follow-up visits but not enforcement work. The enforcement work will remain in the Fire Marshal's office in conjunction with the Indiana State Fire Marshal's Office.

The management of this work during the study years and under the new program remains with the Fire Marshal's Office. The Fire Marshal had, and retains a 15:1 span of control ratio for company officer running the inspection program for company personnel. The company officers continue to supervise their individual personnel by shift when inspecting their assigned areas.

DISCUSSION

The Washington Township Fire Department is changing on a regular basis. All organizations change. Sometimes the change isn't that evident, when the change is slowly implemented. However, when workloads change as the result of culture shifts, as it did after September 11, 2001, the fire department is reinvented quickly. The different goals implemented by different fire chief's also change the organization and the components of the department.

Through all the changes, the basic services needed by the community remain fairly stable. One of the areas that remains is fire inspections. The question proposed in this project relates to how effective is the inspection program after all the changes in Administration and their individual goals for the organization.

The research questions asked three basic questions. Is there a need for company inspections? Are the firefighters properly trained? Is the program set-up properly to

meet these needs?

The Washington Township Fire Department has been doing inspections for more than thirty years. Yet it has never been evaluated to determine if it is effective at its goal. With other areas of the fire service such as emergency medical services and public education, the fire inspection program now has to compete for its share of the fire company workload schedule. Recent events at two high profile nightclub emergencies show that there is still a need for fire inspections because people are still dying in fires and emergencies.

The Literature Review shows that building concerns have been around for thirty-five hundred years. From Babylonian times to the Roman era, to the Middle Ages to Colonial times, fire and building safety has played a part in society. There are thousands of codes that deal with old and new construction work in the United States each year. Code enforcement has been working for years to be proactive and prevent injuries and deaths before they happen. Recent work in emergency medical services has attempted to prevent injuries before they happen, just as fire prevention has been trying to prevent fires for years. EMS is just catching up with fire prevention in getting proactive of the accident and preventing the injury. Fire inspections remain one of the most important non-emergency functions fire departments do today. The fact that EMS is attempting to copy the effort is a testament to that foresight.

The high concentration of people per square foot in buildings is our most dangerous obstacle for fire safety. To reduce this risk, fire inspectors need to be aware of the dangers and responsibility they have when conducting inspections. As fire companies have taken over most of the building inspections in the United States today, fire companies must also understand the risks and responsibilities of this work and know the codes that apply to these buildings.

Because the workloads are so high for fire inspections, it is essential that the fire service manage the inspection program so that it doesn't manage you. The City of Boulder, Colorado designed a program that rates buildings by their hazards, and prioritizes its work to be more effective with its resources. The City of Phoenix Fire Department utilizes self-inspection for businesses that are low hazard areas, also be more effective. Both of these programs are good examples of how departments are using their resources properly to manage the program.

In Indiana, the State Code requires that fire departments in cities conduct inspections, but allows some local flexibility through the fire chief's office. This flexibility can provide the framework for designing a program that benefits the public without over-taxing the fire department.

This research project showed that there was a decrease in the number of violations

for a majority of inspection categories over the study period. That reduction is evidence that consistent work educates the public and they meet those requirements improving safety for themselves and for firefighters.

There are still ten areas of violations in Washington Township that need attention to reduce the risk of fire related injury or death. Even though the study shows that the overall trend in these areas continues to be a reduction in violations, the numbers are still very high. Another consideration of the high rate found in these ten violations is that they are easy to see and inspecting companies move through the buildings too quickly. The literature review found that it is better to do fewer inspections and do more quality work than to move through inspections too quickly. Not only does the fire department get a better idea of the types of violations present, but liability is reduced by improved work production.

While the NFPA Standard for Fire Inspectors would be beneficial for firefighters in terms of education, performance and reduced liability, the educational requirements and recertification requirements would be a drain on limited resources already stretched thin within the Department. Used as a guideline, the NFPA Standard for Fire Inspectors would help give education a direction at the Department that the Department hasn't had in a while. Training is an area where there is much work needed for inspections. Perhaps

getting key officers in the companies certified as inspectors or having a shift manager who is certified as an inspector is an alternative to meeting the certification need the department has while remaining productive in shift work.

Company inspectors found better than eighty-nine percent of the violations in businesses when reviewed for this project. That percentage can be increased through training, better assignment of inspections and with better management. The span of control at 15:1 is too high. That span of control ratio at a fire would not be tolerated and would be easily seen as dangerous. That concern applies to fire inspections as well and should not be tolerated here, either.

RECOMMENDATIONS:

There are four recommendations for the company fire inspections at Washington Township based on the applied research project and findings.

First, fire company inspections should continue to be part of the workload for the station personnel. The history of the program and statistical results show that compliance and an annual reduction in violations occurs with the work. Additionally, the literature review shows that firefighters in the community benefits both the community and the firefighters in both contact and community safety.

Secondly, training must be improved for firefighters. Litigation in other states shows that liability is a real concern for the department and the firefighters. Violations not found that are followed by fire incidents where there is loss of life, injuries or financial loss for businesses leave the department open for litigation. Additionally, the percentage of found violations should improve which will result in improved safety for the citizens and firefighters who respond to emergencies. Additional training might result in different statistics for the Department. If firefighters knew where to look, or how to look, perhaps different types of violations would come to light that vary from the time period studied.

Third, concentrate on the top ten violations found in the research. Those numbers are consistently too high. Perhaps a combination of education and improved enforcement would make a better impact on the high numbers in terms of getting the community to voluntarily self inspect. While the numbers are trending down, the rate of decline is slow and would present a hazard for many years to come.

Finally, a program should be instituted where the supervisory ratio of is decreased from 15:1 to 5:1. The program appears to be managing the department instead of the department managing the program.

The current inspection program is good and it is yielding good results. There is clear evidence that hard work and thought has gone into the program to get it to the point

where it is today. However, we can be more efficient and thereby more effective in the program. We simply need to lengthen our lead in staying out in front of the problems of fire and emergencies in the businesses in our Township.

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